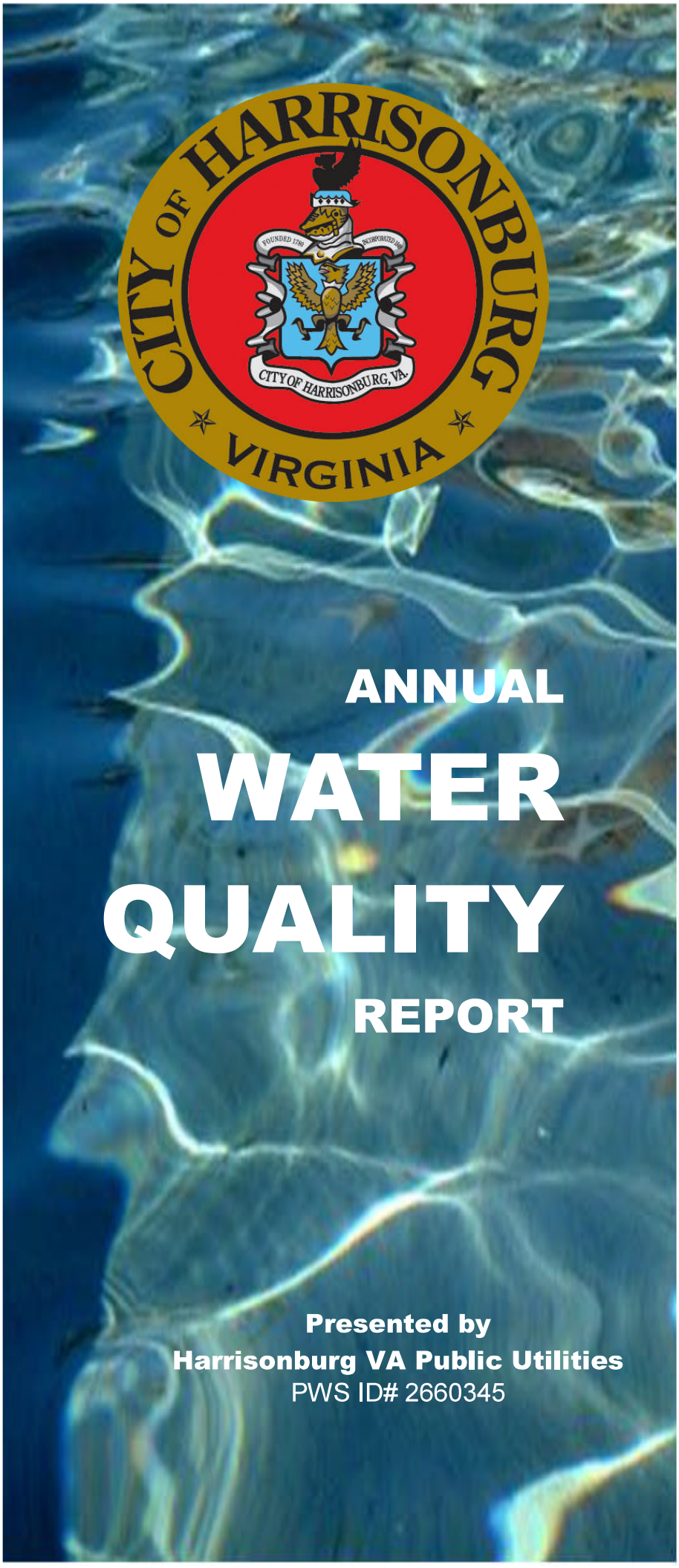


ANNUAL WATER QUALITY REPORT

Presented by
Harrisonburg VA Public Utilities
PWS ID# 2660345

What is in the water?

Contaminants detected January 2013 through December 2013

During the past year, we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The table below shows only those contaminants that were detected in the water. The state requires us to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

Regulated Substances							
Substance (Unit of Measure)	Year Sampled	MCL [MRDL]	MCLG [MRDLG]	Amount Detected	Range Low-High	Violation	Typical Source
Barium (ppm)	2013	2	2	0.033	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Haloacetic Acids [HAA] (ppb)	2013	60	NA	24.6	15-35	No	By-product of drinking water disinfection
Nitrate (ppm)	2013	10	10	0.94	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes] (ppb)	2013	80	NA	37.8	14-70	No	By-product of drinking water disinfection
Total Coliform Bacteria (% positive samples)	2013	5% of monthly samples are positive	0	1 positive sample in 2013 (2%)	NA	No	Naturally present in the environment
Total Organic Carbon (ppm)	2013	TT	NA	NA	0.42-0.81	No	Naturally present in the environment
Turbidity[1] (NTU)	2013	TT	NA	0.04	0.02-0.3	No	Soil Runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2013	<0.3 NTU	NA	100%	NA	No	Soil Runoff
Radiological							
Beta Emitters (mrem/yr)	2010	4	0	< 1.2	NA	No	Decay of natural and man-made deposits
Alpha Emitters (pCi/l)	2010	15	0	< 0.4	NA	No	Erosion of natural deposits
Combined Radium(pCi/l)	2010	5	0	< 0.4	NA	No	Erosion of natural deposits

Tap water samples were collected for lead and copper analyses from sample sites throughout the community.

Substance (Unit of Measure)	Year Sampled	AL	MCLG	Amount Detected (90th%tile)	Sites Above AL/Total Sites	Violation	Typical Source
Copper (ppm)	2013	1.3	1.3	<0.020	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2013	15	0	< 0.015	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits

Secondary Substances							
Substance (Unit of Measure)	Year Sampled	SMCL	MCLG	Amount Detected	Range Low-High	Violation	Typical Source
Fluoride[2] (ppm)	2013	2	NA	0.95	0.85-1.11	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories

[1] Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

Additional Health Information for Lead

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Harrisonburg Public Utilities Department is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 15 to 30 seconds or until it becomes cold or reaches a steady temperature before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline of at http://www.epa.gov/safewater/lead.

Definitions

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG (Maximum Contaminant Level Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MRDL (Maximum Residual Disinfection Level): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG (Maximum Residual Disinfection Level Goal): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NA: Not applicable

ND (Not Detected): Indicates that the substance was not found by laboratory analysis.

NTU (Nephelometric Turbidity Unit): Measure of water clarity. Turbidity in excess of five NTUs is barely noticeable to the average person.

Ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

Ppm (parts per million) or mg/l (milligrams per liter): One part substance per million parts water or milligrams per liter.

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.

Where does my water come from?

The City of Harrisonburg has two reliable water supply sources. The Dry River in Rawley Springs is a surface water source. The watershed includes the Switzer Reservoir Impoundment, which can supply the piping network at capacity with 4 million gallons per day (except during drought) of highest quality water at the most cost-effective price. The North River in Bridgewater is also a surface water source and provides up to 7.5 million gallons per day and 5.5 million gallons per day during drought. The water quantity and quality of North River fluctuates due to runoff conditions at the withdrawal site.

Because our treatment facility has the capacity to provide 15 million gallons of clean drinking water every day, we are in the process of developing a supply line from the South Fork Shenandoah River. (You can find the latest Eastern Raw Waterline Stakeholders Report on our website www.harrisonburgva.gov/public-utilities) Once this project has been completed, we expect to provide a supply of 15 million gallons per day to our customers.

Harrisonburg 2013 Hardness Levels

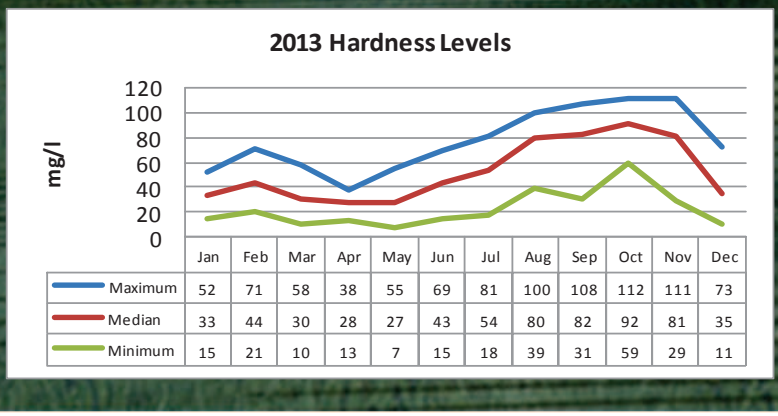
Hardness is due primarily to calcium and magnesium carbonates and bicarbonates (carbonate hardness, which can be removed by heating) and calcium sulfate, calcium chloride, magnesium sulfate, and magnesium chloride (noncarbonated hardness, which cannot be removed by heating). The United States Geological Survey uses this classification of hard and soft water.

Classification	Hardness in mg/L
Soft	0-60
Moderately Hard	61-120
Hard	121-180
Very Hard	≥ 181

With hard water, soap solutions form a white precipitate (soap scum) instead of producing lather. Hardness can thus be defined as the soap-consuming capacity of a water sample; however, synthetic detergents do not form such scums. In addition to being objectionable for laundry and other washing purposes, excessive hardness contributes to the deterioration of fabrics. Satisfactory cleansing of laundry, dishes, and utensils is made difficult or impractical.

Hard water also forms deposits that clog plumbing; these deposits are called "scale." The resulting build-up of scale restricts the flow of water in pipes. In boilers, the deposits impair the flow of heat into water, reducing the heating efficiency and allowing the metal boiler components to overheat.

The World Health Organization says that "there does not appear to be any convincing evidence that water hardness causes adverse health effects in humans."



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Maximum	52	71	58	38	55	69	81	100	108	112	111	73
Median	33	44	30	28	27	43	54	80	82	92	81	35
Minimum	15	21	10	13	7	15	18	39	31	59	29	11

Meeting the challenge

We are proud to present our annual water quality report covering all testing performed between January 1 and December 31, 2013. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please share with us your thoughts or concerns about the information in this report. After all, well-informed customers are our best allies.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/Aids or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the

Safe Drinking Water Hotline
(800) 426-4791
or
http://water.epa.gov/drink/hotline.

Harrisonburg 2013 pH Levels

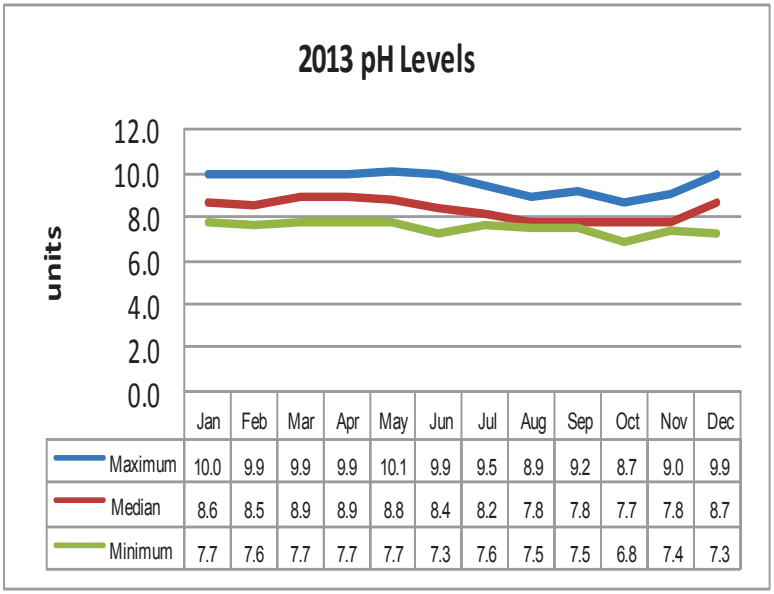
The pH of water is an indication of acidity to basic on a scale of 0 to 14. A pH value of 7 means a substance is neutral. The lower value indicates acidity, and a higher value is a sign of alkaline or basic.

So, what does pH mean for water? In general, water with a pH less than 6.5 could be acidic, soft, corrosive and could contain metal ions such as iron, manganese, copper, lead, and zinc. Acidic water can cause premature damage to metal piping and can have aesthetic problems such as a metallic or sour taste. For water with a pH greater than 8.5, efficiency with chlorine disinfection decreases and some by-products increase. However, corrosion protection is inherent with higher pH.

While the ideal pH level of drinking water should be between 6 -8.5, the human body maintains pH equilibrium on a constant basis and will not be affected by water consumption. For example, our stomachs have a naturally low pH level of 2, which is a beneficial acidity that helps us with food digestion.

During 2013, our pH levels were between 6.8 and 10.1.

pH Examples	
Substances	pH
Apple Juice	3.0
Orange Juice	3.5
Coffee	5.5
Milk	6.2
Baking Soda	8.5
Soapy Water	10.0



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Maximum	10.0	9.9	9.9	9.9	10.1	9.9	9.5	8.9	9.2	8.7	9.0	9.9
Median	8.6	8.5	8.9	8.9	8.8	8.4	8.2	7.8	7.8	7.7	7.8	8.7
Minimum	7.7	7.6	7.7	7.7	7.7	7.3	7.6	7.5	7.5	6.8	7.4	7.3

Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, in some cases, radioactive material, and substances resulting from the presence of animals or from human activity. Substances that may be present in source water include:

Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricul-tural livestock operations and wildlife.

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

Pesticides & Herbicides, which may come from a variety of sources, such as agriculture, urban storm water runoff and residential uses.

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and may also come from gas stations, urban storm water runoff and septic systems.

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at **(800) 426–4791.**

Source Water Assessment

A Source Water Assessment for the City of Harrisonburg was completed by the Virginia Department of Health on May 24, 2002. This assessment determined that the city's water sources, North River and Dry River, are surface waters exposed to a wide array of changing hydrologic, hydraulic, and atmospheric conditions. More specific information may be obtained by contacting the Harrisonburg Department of Public Utilities at (540) 434-9959.

If you have questions about this report or want additional information about the quality of your drinking water, please contact our Engineering Superintendent David Gray at (540) 434-9959.

You may see updates of this report on our website: www.harrisonburgva.gov/water-quality

MARKET ANALYSIS OF WATER AND SEWER RATES
AMONG WATER SYSTEMS OF 10,000-30,000 RESIDENTIAL WATER UNITS
5,000 GALLONS WATER AND SEWER CONSUMPTION

UTILITY PROVIDER	RESIDENTIAL WATER UNITS	WATER $/5000 GAL	SEWER $/5000 GAL	W & S RATE $/5000 GAL
City of Vinton	10,000	11.86	16.45	28.31
City of Harrisonburg	**12,139**	**13.03**	**27.26**	**40.29**
City of Fairfax	10,276	23.21	25.90	49.11
Town of Leesburg	15,916	22.50	29.25	51.75
County of Spotsylvania	28,898	26.07	25.69	51.76
City of Danville	15,387	22.34	30.25	52.59
James City Service Authority	19,631	14.25	39.93	54.18
City of Lynchburg	22,000	18.76	40.62	59.38
Frederick County Service Authority	12,626	27.78	35.27	63.05
Washington Co Service Authority	18,450	34.25	29.00	63.25
Albermarle Co Service Authority	25,497	29.46	37.45	66.91
Henry Co Public Service Authority	12,474	34.70	34.70	69.40
Bedford Regional Water Authority	11,734	32.30	40.50	72.80
City of Charlottesville	12,745	33.54	40.18	73.72
Augusta County Service Authority	15,905	29.27	47.52	76.79
City of Suffolk	29,775	57.80	62.78	120.58
Virginia Control Group		**28.34**	**37.00**	**65.34**

The control group is comprised of 20 water and wastewater providers who represent a cross section of utilities across the Commonwealth and who have faithfully participated in the survey for the past 17 years.

Courtesy of Draper Aden Associates 2013 Study